BATCH JOB / JCL GUIDLINES

All user data at SCO will be under the control of SMS and HSM Storage Management. **J**ob **C**ontrol **L**anguage, must follow the SCO storage standards defined in the SMS and HSM documentation standards (See: SMS - ..\STANDARDS\DFSMS-Standards.doc and HSM - ..\STANDARDS\HSMstandards.doc

A batch job is a unit of work identified by a **JOB CARD** statement, **RJE,** and followed by one or more **EXECUTION** and **DD Statements.**

Good job management, the collective functions of job scheduling and command processing, is necessary to identify the job or describe its requirements to the operating system.

SCO (in-house) Job Control Language Training and Reference Manual is available upon request, contact SCO Help Desk @ 334-4808.

JOB STATEMENT OR JOB CARD

JOB CARD marks the beginning of a Job. It is made up of the following parameters:

Job Card example*:*

```
//JOBNAME JOB (PR,BILLCODE,JN),PROGRAMER.NAME, CLASS=4,
//  MSGCLASS=X,
//  TYPRUN=HOLD
```

JOB NAME - Must start in column #3, and be 1 to 8 alphanumeric characters. The first two (2) digits must be the same as the first two (2) digits of the agency's bill code.

JOB - Constant. This identifies a job statement to the system.

ACCOUNTING INFORMATION - Consists of 3 positional fields, enclosed by parentheses and separated by commas.

First Field: Type of Job.
PT - defines a test job.
PR - defines a production job.

Second Field: Bill code, 1-8 characters, the first 3 must be a valid agency bill code.

Third Field: Job statistics or flower box control.
JN - provides job level statistics only.
NN - provides no job/step statistics, except on abnormal termination.
CN - provides step level statistics.

PROGRAMMER NAME - Identifies who is running the job, and will be used to route all output if printed. Names can be separated by a period.

CLASS - Defines the initiator in which the job will run. Job classes have been established in order to improve turn-around. See the CLASSES section in this manual to determine which CLASS should be used.

MSGCLASS - Defines the output queue for the job (where the output from the job will be printed). See the MSGCLASS section in this manual to determine which should be used.

TYPRUN - Parameter to hold, or scan syntax of a job. All jobs that require operator intervention, run longer than 2 hours wall time or require more that 4 (3480) tape drives, must have **TYPRUN=HOLD** and job related information provided in the ' RJE'. (Panvalet member XA0RJE contains RJE parms).

RJE INSTRUCTIONS:

RJE - Remote Job Entry Instructions - Must be entered for all jobs. The RJE section provides information needed by the Computer Service Center Operations Staff. RJE instructions should include the following:

RJE example:

**** RJE *** OPERATOR INSTRUCTIONS *** RJE**

RUN TIME= 30 Min

FORM = STD

NO. TAPE DRIVES: 6

SPECIAL INSTRUCTIONS: NONE

PREVIOUS JOB(S): DA803001=P NEXT JOB(S): DA803002

RUN TIME - Actual wall clock time that the job takes to run.

FORM - Form needed. STD = Standard Laser Paper. To identify a form name contact the Computer Service Center Help Desk.

NO. TAPE DRIVES - Not needed unless job allocates more than 4 drives at any given time, and then will need a **TYPERUN=HOLD**.

SPECIAL INSTRUCTIONS - Supply special instructions to the Computer Operator pertaining to the job. Jobs having special instructions must have a **TYPRUN=HOLD,** in the job card.

The following are examples of special instructions:
Keep tapes in computer room until called for
This is a test "print job". Cancel job after 10 pages
Please run this job anytime after 6:00 p.m.
Return tape to H&W Data Control after this runs

NOTE: When practical, list all input tapes that will be in a job by VOLSER number. This includes all user-supplied tapes as well as Computer Service Center tapes. ALL input tapes must be in the Computer Room before the job is submitted. Call Data Controller to verify input tapes are in the Computer Room at 334-4808.

PREVIOUS JOB (S) - Name of job that ran prior to this job. If job is pansubbed from a previous job, add an **=P** after the job name (SCO standards only). Leave area blank if no previous job.

NEXT JOB (S) - Name(s) of job(s) that will run after this job. If the next job is pansubbed from the current job, add an **=P** after the job name or names (SCO standards only). Leave area blank if none.

NOTE**:** It is not the responsibility of the operator to monitor job quality control or successful job completion.

DCI INSTRUCTIONS

DCI – Data Control Instructions – Are included on all jobs requiring special handling by Data Control prior to job running, or after job completion. Valid Condition Codes, and support contact would be listed here. This would also include Bill Code data, date statements, output or fiche requirements ect….

DCI example:

```
//********** DCI ****  DATA CONTROLLER INSTRUCTIONS **** DCI ******************
//*
//* SPECIAL INSTRUCTIONS      | FREQUENCY=       | CONTROL CARD=
//* ****************************      ********************     ************************
//*
//* INPUT TAPE DATASET NAME(S)
//* ****************************************
//*
//* COND/CODE(S)          STEP NAME(S)              RESPONSE
//* ******************          ********************          ********
//*
//* MICROFICHE DATASET NAME(S)                COPIES
//* ************************************                **********
//*
//* AGENCY TO RECEIVE REPORT(S)          DEALLOCATION TO AGENCY?
//* ***************************                  **********************
//*
//***************DCI**********DATA CONTROLLER************DCI***************
```

SPECIAL INSTRUCTIONS – Special instructions or miscellaneous information needed other than Control Card or Restart instructions.

FREQUENCY = How often the job runs: Daily, Bi-Weekly, Monthly, Yearly

CONTROL CARD = - Yes indicator means there are control instructions, such as JCL changes (date formats, bill codes, etc…), located in a designated library, that need checked prior to running.

INPUT TAPE DATASET NAMES - Optional

COND/CODES - Accepted valid condition codes for job completion

STEP NAMES – Optional

RESPONSE – Optional

MICROFICHE DATASET NAMES = List of dataset names created for processing to send offsite for MICROFICHE creation.

COPIES – Number of copies needed for each data set listed for MICROFICHE

AGENCY TO RECEIVE REPORTS – List of reports and the agency to receive reports.

DEALLOCATION TO AGENCY – Yes indicator will mean the agency would like the job DELLOCATION - Optional

Execute Statement:

EXEC Identifies the Program, Cataloged Procedure, or In Stream Procedure (PROC) that a job step is to execute.

Execute Statement example:

```
//STEPNAME EXEC PGM=PROGNAME
//STEPLIB DD DSN=XXX.XXX.XXXXXX

/STEPNAME EXEC PROC=PROCNAME
//STEPNAME EXEC PROCNAME
```

STEP NAME - Uniquely identifies step being executed. Consist of 1 to 8 alpha or numeric characters. Cannot exceed 255 steps per job. Step names are optional, but must be used for backward references, re-starting at particular steps, overriding DD statements or adding condition code parameters.

EXEC - Constant identifies an Execution statement to the system.

PGM / PROC - Informational only, identifies that a Proc or Pgm is being executed.
NOTE: All Programs must have a **STEPLIB DD** statement in order for it to obtain the program to be executed.

PROCNAME - Name of Program or Procedure that is being executed. Consist of 1 to 8 alpha or numeric characters.

DD Data Definition Statements:

DD Statement describes the data set name (DSN) and specifies the input/ output facilities needed for the data set. The general structure of a DD statement, including key words (parms followed by an = sign) is as follows:

DD Statement example:

```
//DDNAME DD DSN=XXX.XXX.XXXXXXX,DISP=(,CATLG,DELETE),
//         UNIT=SYSDA,SPACE=(CYL,(200,20),RLSE),
//         DCB=(RECFM=XX,LRECL=XX,BLKSIZE=XXX)
```

```
//DDNAME DD DSN=XXX.XXX.XXXXXXX,DISP=(,CATLG,DELETE),
//         UNIT=TAPE,
//         DCB=(RECFM=XX,LRECL=XX,BLKSIZE=XXX)
```

DDNAME - Specifies the data description name found in the environment division (input-output section of the program). Must be unique within the step, start in column 3, and the first character must be alpha.

DD - Constant, identifies a DD statement to the system. It is accompanied by Key Words, followed by an **=**.

KEY WORDS:

DSN= Is the **D**ata **S**et **N**ame that defines and identifies the data by group and/or storage management to the computer system.

```
DSN=BBB.XXX.XXXXXXX
```

DSN names can be no longer than 44 characters including periods. GDG's can be no longer than 35 characters. First character after each period must be an alpha or national character (*#%).

DSN Qualifiers are separated by a period and cannot exceed 8 digits. First level qualifier must contain a valid three digit bill code. VSAM Data Sets must also be defined in the first level qualifier following the bill code.

First Level Qualifier (required) -

- *BBB* = Valid 3 digit bill code.
- *BBB***V** = Production VSAM Data sets preceded by valid bill
- *BBB***VT** = Test VSAM Data sets.

NOTE: Data sets will be SMS managed. Contact the system storage administrator for assistance in setting up a datasets that need special management.

NOTE: Do not specify SMS/HSM constructs in Dataset naming conventions, such as NOMIGR. Current existing data sets using these types of constructs will not be valid for migration management in the near future. Contact the Storage Media Coordinator datasets that require special SMS/HSM migration needs.

NOTE: Data sets whose names have been inserted in the SMS/TMM no tape mount management list, or have, OFFSITE, CLIENT, FY (fiscal year), CY (calendar year), or FICHE in the 3rd or 4th qualifier name, will not be tape mount managed (they will continue to write to tape). RMM must also be appropriately updated for offsite tapes automatic ejection (contact the Storage Media Coordinator regarding these data sets). See (link) on information for SMS Managed Data.

For further details on SMS/HSM management, see our Service Catalog on our Web site at: http://www.sco.idaho.gov Computer Services

DISP= Identifies the disposition status of the DSN, and tells the system what to do with the data set at the end of the job. A disposition parm is required unless the data set is a temp.

DISP=(NEW,CATLG,DELETE) or (,PASS,DELETE)

First Field: Indicates the incoming status of the data set
NEW - Indicates a new data set is to be created (NEW can be coded with a comma).

OLD - Indicates that the data set exists before this step and that this step requires exclusive (unshared) use of the data set.
SHR - Indicates that the data set exists before this step and that other jobs can share it, use it at the same time. Always use when referencing Partitioned, Steplib or Joblib data sets.
MOD - Indicates records are to be added to the end of a pre-existing data set or a new data set is to be created. In either case, MOD specifies exclusive use of the data set.

Second Field: Status of the data set upon normal termination of job.
CATLG - Indicates that if the step terminates normally, the system is to place an entry pointing to the data set in the system catalog.
PASS - Indicates that the data set is to be passed for use by another step in the same job.
KEEP - Indicates that the data set is to be kept on the volume. For new SMS data sets, KEEP implies CATLG.
DELETE - Indicates that the data set is no longer needed.
UNCATLG - Indicates that, if the step terminates normally, the system is to delete the entry point to the data set in the system catalog and unneeded indexes, except for the highest-level entry. Note the data set is kept. With SMS, UNCATLG is ignored for SMS-managed data sets and VSAM data sets, KEEP is implied.
NOTE: Cataloged SMS data sets are at the beginning of a step rather than at the end of a step or job.

Third Field: Status of the data set if the job terminates abnormally.
CATLG - Indicates that if the step terminates normally, the system is to place an entry pointing to the data set in the system catalog.
KEEP - Indicates that the data set is to be kept on the volume. For new SMS data sets, KEEP implies CATLG.
DELETE - Indicates that the data set space is to be released.
UNCATLG - Indicates that, if the step terminates normally, the system is to delete the entry point to the data set in the system catalog and unneeded indexes, except for the highest-level entry. Note the data set is kept. With SMS, UNCATLG is ignored for SMS-managed data sets and VSAM data sets, KEEP is implied.

UNIT= Places data set on a specific device.

UNIT=(DEVICE,,DEFER),DATACLASS=

First Field: The device type that the data set is written to.

MTL – (Manual Tape Library) MTL is a Virtual Tape(VT) storage server that is automated with virtual tape drives. It is a replacement for the older 3490/3590 tape cartridge technology. One of the primary benefits of this new VT technology is the ability to securely replicate your backup data within minutes to our business continuity site, and to more quickly recover and restore that data in the event of a disaster. **NOTE: Do not use DATACLASS or STORCLAS with this unit Parm.**

MTLDR– (Manual Tape Library) MTLDR is a Virtual Tape(VT) storage server that is automated with virtual tape drives. Data backups for Disaster Recovery, such as ABARS and system data, should be coded with this unit parm. In addition to writing to SCO and BCS, this data will also write to the tertiary Data Domain. Disaster Recovery data is used to restore complete applications and OS systems. **Do not code application step recovery bkups, archival, or history data to MTLDR. NOTE: Do not use DATACLASS or STORCLAS with this unit parm.**

SYSDA – (**Sy**stem **D**irect **A**ccess). All data sets allocated on SYSDA will be SMS/HSM managed. Unless deleted, data sets will be migrated to virtual tape(VT). Migration is based on access frequency and/or Management Class characteristics set for the data set. All data sets are backed up prior to migration. For information on data set Management Class, contact the System Storage Manager or reference them in ISMF (Interactive Storage Management Facility). **NOTE:** Exceptions to this standard are large data sets, ABARS backups, and DF/DSS dumps.

TMM – (**T**ape **M**ount **M**anagement) TMM is used to manage small tape data sets (less than 600 MBs. TMM directs these tape datasets to a DASD storage pool and then migrates them in groups to virtual tape(VT) for a more efficient use of space. For information on TMM Management Class, contact the Storage Manager or view them in ISMF (Interactive Storage Management Facility.

Note: as of July 31, 2011 SCO no long offers robot (ATL) tape use. Stand-Alone 3490 and 3590 tape drives are available in a limited capacity. All unit parms below will be redirected to the Stand-Alone drives. All old ATL tape data can still be read on the stand-alone drive in the event data is needed – please contact SCO HD to pull tapes prior to use, to help speed up the processing time. Although the below units parms for STAND – ALONE TAPE use are currently accepted at CSC, they are not the preferred or best "use" of data storage JCL coding .

3490 – STAND – ALONE TAPE cartridge for datasets under 3 Gig. For tapes going offsite, you **must** send dataset name to Storage Administrator to set Dataclass constructs, or dataset may not be handled as expected, or job may be disallowed.

3590-1 - STAND – ALONE Magstar TAPE cartridge for extremely large data sets over 3 Gig. You **must** send dataset name to Storage Administrator to set Dataclass constructs, or dataset may not be handled as expected, or job may be disallowed.

TP90 - STAND – ALONE Tapes for system use only and current off=site Fiche ((SA) Stand Alone tape device).

TP90,VOL=SER=HWxxxxx - STAND – ALONE Write to HW owned, 3490 stand-alone tapes.

TP95 - STAND – ALONE For system use only - Write to stand-alone 3590's for off-site use, or none SMS managed System Data. Contact Storage Media Coordinator for assistance. If these tapes are to go off site they may need to be NL tapes that are not in our library system**.**

UNIT=AFF=DDNAME - Used to allocate different data sets residing on different tapes, to the same allocated device**.** (Uses one device for multiple data sets).

Second Field: Unit Count and Number of Devices Allocated. Not commonly used, to bypass, code a comma for each of these fields.

Third Field: Requests that the volume (tape only) not be mounted until the data set is open.

DEFER - Do not use this parm when allocating a direct access device (DASD).

SPACE PARM= Request space for an output data set being created on a direct access device. Do not code space for tapes. Enclose sub-parameters within parentheses

```
SPACE=(TRK,(90,45),RLSE)
```

First Field - The type of space allocation.
TRK - Request allocation in tracks.
CYL - Request allocation in cylinders.
BLKLGTH - Specify block length, in bytes using decimal numbers 0 through 65535.

Second Field - The amount of primary space needed.

Third Field - The amount of secondary space that may be need in addition to the primary amount. The primary amount is allocated when the data set is opened with a disposition of NEW. The secondary amount is allocated if the primary amount is exceeded, A sequential data set can only be split into 16 segments, after that, the job will abend. When coding CONTIG in a space parameter, space is allocated only if it is contiguous. If contiguous space cannot be found, the job will receive a JCL error and stop processing.

Fourth Field - Request that space allocated to an output data set, but not used, is to be released when the data set is closed. RLSE should always be coded.

DCB = Data Control Block, defines the length of each record, how the records are blocked, and how many records are in a block. DCB pattern, is a data set that has been cataloged to the system with a specific set of DCB attributes. A pattern must be used when creating a generation data group (GDG). NOTE: For the most efficient method of building output data along with the DCB add, BLKSIZE=0, DSORG=PS. However, do not use on tapes being sent to clients, vendors, microfiche or when writing to a data set that will be used by SYSSMAIN (reprints for warrants). Programs must also have block contains "0" in the program, otherwise, when writing to tape it will write 1 record per block.

DCB=(RECFM=FB,LRECL=10,BLKSIZE=100)
DCB=XAD.DCB.FB10,BLKSIZE=0,DSORG=PS (DCB pattern)

First Field - Specifies the format and characteristics of records in a data set.
RECFM=FB - Indicates that the records are fixed length and blocked
RECFM=VBS - Indicates that the records are variable length, blocked, and spanned.
Second Field - Specifies the length of a record, in bytes.
LRECL=10 - Specifies the length in bytes, for fixed length records
LRECL=327 - Specifies the maximum length, in bytes for variable length records.

Third Field - Specifies the maximum length of a block, in bytes
BLKSIZE=100 – The number of bytes specified depends on the device type and the record format of the data set. The maximum is 32760 bytes. NOTE: The block size must be the same as the logical record length for the “F” format. The block size must be a multiple of the logical record length for all “FBA” formats. Variable record formats must be a multiple of the logical record length plus 4. For most files the higher the block size, the more efficient usage of space.

DATACLASS= Can be used in place of DCB to simplify the JCL. Dataclass definitions are predefined DCB patterns set up by the System Storage Manager. To have Dataclass definitions added for use, contact the System Storage manager. Existing Dataclass definitions can be viewed in ISMF.

Note: Currently you must use DATACLASS=ATL3490E in conjunction with Unit=3490, and DATACLASS=ATL35901 in conjunction with Unit=3590-1.

DATACLASS=DEFAULT

UNSOUND JCL STANDARDS – Although the below JCL standards are currently accepted at CSC, they are not the preferred or best "use" of JCL coding. In the near future this coding will become obsolete, or disallowed. If you need assistance with coding or recoding using the correct JCL standards, please contact our Help Desk at 334-4808

UNIT= Places data set on a specific device.

UNIT=(DEVICE,,DEFER),DATACLASS=

First Field: The device type that the data set is written to.

TP80 – System default. At this time Default is directed to 3490 STAND – ALONE tape. DSN will write to 3490 unless DSN or JOB is being TMM managed.

3490 - STAND – ALONE tape cartridge (Under 3 Gig). Used in conjunction with STORCLAS=LRGETAPE. Contact Storage Media Coordinator for assistance in changing this JCL to accepted practice standards.

3590-1 - STAND – ALONE Magstar robot tape cartridge for extremely large data sets 3 Gig. Used in conjunction with STORCLAS=MEGATAPE. Good candidates are DF/DSS backups, and large temporary files that are deleted at the end of a job. All data sets that are written to 3590-1's need to be added to a filer list. Contact Storage Media Coordinator for assistance. NOTE: 3590-1's are used by permission only.

MGMTCLAS= Overrides defaults for SMS/TMM/HSM managed data sets. Primary space management (HSM/TMM migration) runs daily at 13:00 hours, 7 days a week including holidays. See System Managed Storage Structure in this manual for more details. NOTE: If there are refer-backs or multi-file data sets in the JCL, the same management class must be used for all files.

MGMTCLAS=MANAGEMENT CLASS NAME

Predefined management class names =
TMMNXTRN - Migrates tape data set on next TMM migration run.
TMM3DAYS - Migrates tape data set 4 days after creation date (Default).
TMM5DAYS - Migrates tape data set 5 days after creation date.
NEVRRLSE - Never release excess space on physical sequential data sets or PDS.
NEVRMIGR - Never migrate DASD physical sequential data sets, or PDS.
HSMSHORT - Migrates DASD (Physical sequential, Partitioned and Extended Partitioned) data sets, 3 days after creation date.
HSMEDIUM - Migrates DASD (Physical sequential, Partitioned and Extended Partitioned) data sets, 7 days after creation date.
NEVRNEVR - Never migrate and Never release space, on a DASD physical sequential data set, or PDS.

STORCLAS= Overrides defaults for management of a SMS/TMM managed data set. Primary space management (HSM/TMM migration) runs daily at 5:00 AM, 7 days a week including holidays. See System Managed Storage Structure.

STORCLAS=STORAGE CLASS NAME

Predefined storage class names =
LRGETAPE - Catalog a data set to a 3490E **STAND – ALONE** tape cartridge. UNIT=3490 must also be used in conjunction with STORCLAS= for disaster recovery purposes.
MEGATAPE - Catalog a data set to a 3590 **STAND – ALONE** tape cartridge. Used for extremely large (5, 3490's) data sets only. UNIT=3590-1 must be also be used in conjunction with STORCLAS= for disaster recovery purposes.

Other Commonly used DD Data Definition Statements, Key Words, and Utility examples:

VOL= Identifies the volume on which a data set resides. Use parentheses when coding a combination of positional subparameters. Parentheses are not needed when coding only SER=, or REF=

VOL=SER=serial number **VOL=REF=dsname** **VOL=(REF=*.ddname)** **VOL=(REF=*.stepname.ddname)** **VOL=(,RETAIN,volume seq number)** **VOL=(,RETAIN,vol seq,vol count,SER=(serial number, serial number)**

SER=(AU1122) - 1 to 6 alphanumeric characters that identify a volume.
REF=XAO.S19.RECOST - obtain serial number from another data set or an earlier DD statement
REF=*.MI190001 - Obtain serial number from an earlier DD statement ddname in the same job step.
REF=*.STEP010.MI190001 - Obtain serial number from an earlier DD statement ddname, in an earlier step, stepname, in the same job.

VOL=(,RETAIN,4) – Request that private tape volumes are not to be unloaded or rewound after the data set is closed or at the end of the step. For public tape volumes, the volume will be retained at the device if it is unloaded during the job. 4 = Volume Seq Number, which identifies the volume of an existing multi volume data set is to be used to begin processing the data set. If a number is not specified the system will process the first volume.
VOL=(,RETAIN,4,2,SER=(AU1122,AU1133) 2 = Volume Count - Specifies the maximum number of volumes that an output data set requires. Code Volume count for new tape data sets when data will reside on 6 or more volumes.

LABEL= Specifies label type, and position on the tape for tape data set.

```
LABEL=(1,SL)
LABEL=(2,BLP)
```

First Field - Identifies the relative position of a data set on a tape volume. The data set sequence number is 1 through 4 decimal digits.

Second Field - Label type.
SL - Standard IBM label (system default)
NL - Indicates that a tape has no labels
BLP - Request that the system bypass label processing for a tape data set. It is important that the label order be understood when bypassing.

1=Tape label header
2= Data header 1
3= Data 1
4= Trailer 1
5= Data Header 2
6= Data 2
7= Trailer2

TO CREATE A MULTI-FILE TAPE **-** Use Key Word, LABEL= in conjunction with Key Word, VOL=

```
//STEP010  EXEC PGM=XXXXX
//DDNAME1 DD DSN=XAO.S19.TRANS.WEEK1,DISP=(,CATLG,DELETE),
//              UNIT=(TAPE),DATACLASS=TAPE1,
//              LABEL=(1,SL),VOL=(,RETAIN)
//DDNAME2  DD DSN=XAO.S19.TRANS.WEEK2,DISP=(,CATLG,DELETE),
//              UNIT= (TAPE,,DEFER),DATACLASS=TAPE2
//              LABEL=(2,SL),VOL=(,RETAIN,REF*.DDNAME1)
//DDNAME3  DD DSN=XAO.S19.TRANS.WEEK3,DISP=(,CATLG,DELETE),
//              UNIT= (TAPE,,DEFER),DATACLASS=TAPE1,
//              LABEL=(3,SL),VOL=REF=*.DDNAME2
```

NOTE: If the first DD is managed by a management or storage class, all other multi file DD's in the same step will default to the same class. Example, the first DD is directed to the robot, all other multi file DD's will default to the robot.

First LABEL= Request that the system create the first data set as the first label on the tape, then retains the tape for the next DD statement.
Second LABEL= Request that the system create the second data set as the second label on the tape, then retains the tape for the next DD statement.
Third LABEL= Request that the system create the third data set as the third label on the tape, then no longer retains the tape for additional labels.

GDG's (Generation Data Group) - Multi versions (generations) of a same named data set. A GDG index must first be set before the data set is created. Once the maximum limit has been reached (example, index of 5), the first created data set (generation 1) will be deleted and the next data set will be created as generation 6. Thus always keeping a maximum of 5 generations of the data set.

TO CREATE A GDG INDEX – Identifies the name and limit of generations for a data set.

```
//STEP010 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
   DEFINE GENERATIONDATAGROUP -
   (NAME(XXX.XXX.XXXXXXX) -
   LIMIT(XX) -
   SCRATCH -
      NOEMPTY)
```

DELETE A GDG INDEX

```
//SYSIN DD *
DELETE XXX.XXX.XXXXXXXX
```

REVISE/ALTER A GDG INDEX

```
//SYSIN DD *
ALTER   XXX.XXX.XXXXX -
LIMIT(NNN)
```

LIST GDG BASE INDEX

```
//SYSIN    DD *
  LISTCAT LEVEL(XXX.XXX.XXXXXX) ALL
```

REFERENCE A GDG DATA SET BY IT"S EXACT GENERATION NAME

```
DSN=XAO.S19.WEEK.G0003V00
```

REFERENCE A RELATIVE GENERATION

```
DSN=XAO.S19.WEEK(-2)   (0) being the most current
```

REFERENCE ALL GENERATIONS OF THE SAME DATA SET

```
DSN=XAO.S19.WEEK
```

CREATING A GDG DATA SET

```
DSN=XAO.S19.WEEK(+1)
```

CONCATENATED DSN - Data sets that are linked to simulate a single input data set through one DD statement.

```
//DDNAME DD DSN=XAO.S19.TRANS.WEEK1,DISP=SHR
//          DD DSN=XAO.S19.TRANS.WEEK2,DISP=SHR
//          DD DSN=XAO.S19.TRANS.WEEK3,DISP=SHR
```

TO SPECIFY A MEMBER IN A PARTITIONED DATASET (PDS)

```
//DDNAME DD DSN=XAO.OPS.PDS(PRINTDSN)
```

TO CREATE AN EMPTY DSN (DUMMY)

```
//DDNAME DD DUMMY
```

TO COMPARE TEST MEMBERS AGAINST PRODUCTION MEMBERS

```
//STEP010 EXEC PGM=BCOMPARE,REGION=4096K
//STEPLIB DD DSN=XAD.SIDEBYSI.SRCLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSUT1 DD DSN=XXX.XXX.XXXXXXXX(????????),DISP=SHR
//SYSUT2 DD DSN=XXX.XXX.XXXXXXXX(????????),DISP=SHR
//REPORT DD SYSOUT=*
```

PRINT TO A REMOTE DESTINATION (other than SCO printers).

```
//DDNAME DD SYSOUT = T,DEST=XXXX (xxxx=predefined by SCO)
```

PRINT NON-CATALOGED DATA (SYSOUT) DIRECTLY TO PRINTER

```
//DDNAME DD SYSOUT=X,COPIES=2  OR
//DDNAME DD SYSOUT=* (*  refers back to the MSGCLASS on job card)
```

NOTE: Do not use on a print data set that exceeds 25,000 lines.

PRINT SYSOUT ON A SPECIFIC FORM

```
//DDNAME DD SYSOUT=(Q,,XXXX) (xxxx= predefined by SCO)
```

PRINT A DATA SET

```
//STEP01     EXEC   PGM=IEBGENER
//SYSPRINT  DD   SYSOUT=*
//SYSUT1     DD   DSN=XXX.XXX.XXXXXX,DISP=SHR
//SYSUT2     DD   SYSOUT=*
//SYSIN       DD   DUMMY
```

PRINT A PAN MEMBER

```
//STEP000    EXEC   PGM=PAN#1
//STEPLIB    DD   DSN=XAS.PAN.LOAD,DISP=SHR
//PANDD1    DD   DSN=XAS.PAN.ALLUSER.PANLIB,DISP=SHR
//PANDD2    DD   DSN=&&SOURCE,DISP=(NEW,PASS),UNIT=SYSDA,
//                DATACLASS=(DEFAULT),SPACE=(TRK,(X,X),RLSE)
//SYSPRINT   DD    SYSOUT=*,COPIES=1
//SYSPUNCH   DD  SYSOUT=B
//SYSIN      DD *
++WRITE  PRINT,XXXXXXXX
```

COPY ALL DATA FROM ONE INPUT DSN TO AN OUTPUT DSN

```
//STEP000  EXEC PGM=IDCAMS
//SYSPRINT  DD SYSOUT=*
//INPUT01   DD DSN=MOD.XXX..XXXXXX,DISP=SHR
//OUTPUT01  DD DSN=MOD.XXX..XXXXXX,DISP=(,CATLG,DELETE)
// DATACLASS=DEFAULT,UNIT=SYSDA,SPACE=(TRK,(X,X),RLSE)
//SYSIN    DD   *
     REPRO INFILE(INPUT01) -
     OUTFILE(OUTPUT01)
```

COPY ONLY 200 RECORDS FROM ONE INPUT DSN TO AN OUTPUT DSN

```
//SYSIN    DD   *
     REPRO INFILE(INPUT01) -
     OUTFILE(OUTPUT01) –
     COUNT(200)
```

SKIP THE FIRST 200 RECORDS AND COPY THE REST OF THE FILE

```
//SYSIN     DD *
   REPRO INFILE(INPUT01)  -
      OUTFILE(OUTPUT01) -
      SKIP(200)
```

SKIP THE FIRST 200 RECORDS AND COPY ONLY THE NEXT 5

```
//SYSIN     DD *
  PRINT INFILE(INPUT01) CHAR SKIP(200) COUNT(5)
```

DELETE A CATALOGED DATASET ON TAPE

```
//PROC000 EXEC XA95TPDE
//STEP010.SYSIN DD *
  DELETE (XXX.XXX.XXXXXX)
```

DELETE A CATALOGED DATASET ON DISK

```
//STEP000   EXEC PGM=IEFBR14
//DDNAME  DD DSN=XXX.XXX.XXXXXX,DISP=(MOD,DELETE,DELETE),
//               UNIT=&UNIT,SPACE=(TRK,(0))
```

DELETE A MIGRATED CATALOG DATASET. HDEL can be repeated. Wild cards can be used to include multiple data sets and or GDG's with an IDCAMS

```
//STEP01   EXEC  PGM=IDJEFT01
//SYSPRINT  DD  SYSOUT=X
//SYSTSPRT  DD  SYSOUT=X
//SYSTSIN     DD  *
HDEL 'XXX.XXX.XXXXX.G0000V00'  (0r)
//STEP01 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
SYSIN DD *
   DELETE XXX.XXX.XXXXX
   IF MAXCC = 8 –
   THEN -
    SET MAXCC - 0
```

TO RECALL A MIGRATED DATASET(last line can be repeated)

```
//STEP01   EXEC  PGM=IKJEFT01
//SYSPRINT  DD  SYSOUT=X
//SYSTSPRT  DD  SYSOUT=X
//SYSTSIN     DD  *
HRECALL 'XXX.XXX.XXXXX.G0000V00'
```

JCL SCAN OF PANLIB

```
//STEP010  EXEC PGM=PAN#8,PARM='OPEN=INP'
//STEPLIB  DD DSN=XAS.PAN.LOAD,DISP=SHR
//PANDD1   DD DSN=XAS.PAN.ALLUSER.PANLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
++CONTROL 20202
++SCAN *JCL,'XXXXXXXXXXXXXXXXX'
```

DEBUG - Additional DD statements used to print the Messages and Dump information associated with program. The DEBUG statements are coded in your JCL after the STEPLIB statement or after the EXEC statement (Utilities). List each individual DD DEBUG statement out in the Execution JCL (Job) and use the ++INCLUDE debug statement in a PROC (statement will be expanded once executed)

XAPSYSOUT - Contains the debug statements for in-house programs.

```
Execution JCL
//STEP010 EXEC PGM=XXXXXXXX
//STEPLIB DD DSN=XXX.XXX.XXXXXXX,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSABOUT DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//SYSOUX   DD SYSOUT=*
//SYSDBOUT DD SYSOUT=*,DEST=R0040
//SYSUDUMP DD SYSOUT=*,DEST=R0040
OR
PROC
//STEP010 EXEC PGM=XXXXXXXX
//STEPLIB DD DSN=XXX.XXX.XXXXXXX,DISP=SHR
 ++ INCLUDE XAPSYSOUT
```

XAPSYSPRNT - Contains the debug statements for the commonly used IBM utility programs. This DD statement prints any messages (counts) from the utility.

```
EXECUTION JCL
//PROC010 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
OR
PROC
//PROC010 EXEC PGM=IDCAMS
++ INCLUDE XAPSYSPRNT
```

XAPSYSBOMB - Contains the debug card for XA950004 bomb program. However, no debug card is required in XA95BOMB PROC, the debug statements are already included in the PROC.

```
//STEP045 EXEC PGM=XA950004,COND=(0,EQ,STEP040)
          ++INCLUDE XAPSYSBOMB
```

XA95BOMB/XA950004 - SCO programs that are used to stop the Job when an error is encountered. These programs issue an OC7 abend when executed. If the 'Stated STEP' fails, a COND parameter must be stated on the EXEC statement of the bomb program or procedure.

XA950004 - Program which is used within a PROC. Must include the XAPSYSBOMB debug statements below the execute statement.

```
//STEP045 EXEC PGM=XA950004,COND=(0,EQ,STEP040)
          ++INCLUDE XAPSYSBOMB
```

XA95BOMB - Proc which is used in the EXEC JCL.

```
//PROC025 EXEC XA95BOMB,COND=(0,EQ,PROC020.NAT)
```

Delete DD - A data set which is being CATLG. A delete DD can be added to the BOMB PROC/PGM step to delete the just created data set.

```
//STEP050 EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=&WTR1
//INPUT01 DD DSN=XAO.S19.WEEK,DISP=OLD
//OUTPUT01 DD DSN=XAO.S19.WEEK1,DISP=(,CATLG,DELETE),
//             UNIT=SYSDA,SPACE=(TRK,(75,25),RLSE),
//            DATACLASS=DEFAULT
//SYSIN    DD DSN=SYS1.XADPROC(XA95RP01),DISP=SHR
//*
//STEP055 EXEC PGM=XA950004,COND=(0,EQ,STEP050)
            ++INCLUDE XAPSYSBOMB
//DEL1 DD DSN=XAO.S19.WEEK1,DISP=(OLD,DELETE,DELETE)
```

CONDITION CODES - Used to specify the conditions that cause the job to stop processing, determine whether to execute or bypass a particular job step.

```
COND=(CODE,OPERATOR,STEPNAME)
```

First field - Specifies a number that the system compares to the return codes from all previous steps or from specified steps in the job. Code is a decimal number from 0 through 4095.

Second field - Specifies the type of comparison to be made to the return code. If the specified test is true, the step is bypassed.

GT = Greater Than
GE = Greater than or equal to
EQ = Equal to
NE = Not equal to
LT = Less than
LE = Less than or equal to

Third field - Identifies the EXEC statement of a previous job step that issues the return code to be used in the step.

COND=(0,EQ,STEP010) means that if 0 is equal to the return code issued by STEP010, the current step(STEP015) is to be bypassed.

```
//STEP015 EXEC PGM=XA950004,COND=(0,EQ,STEP010)
              ++INCLUDE XAPSYSBOMB
```

COND=ONLY tells the system to execute the job step only if a previous step has abended. If an abend has not occurred, the step is not executed

```
//STEP020 EXEC PGM=XXXXXXX,COND=ONLY
```

COND=((8,EQ,STEP010),(12,LE,STEP020)) means the current step(STEP030) will be bypassed if 8 is equal to the return code from step STEP010 or if 12 is less than or equal to the return code from STEP020.

```
//STEP030 EXEC PGM=XA950004,
//      COND=((8,EQ,STEP010),(12,LE,STEP020))
```

CLASS (Input Class= (defined in job card)

HOT BATCH – Critical Production Processing - approval from CSC Bureau Chief needed.

CLASS = X CLASS = X Health and Welfare On-demand high-priority jobs, (ICSES DocExec, Vital Stats and WIC)
CLASS = Y SCO-CSC Critical System functions

GROUP 1 – Primary Business Production Priority - approval from CSC Bureau Chief needed.

CLASS = D Health & Welfare production APPL only
CLASS = N Health & Welfare on-demand eligibility EPICS
CLASS = Q Health & Welfare EPICS system
CLASS = S SCO-CSC System batch processing
CLASS = P AU44 & DA80 & SC35 production APPL only

GROUP 2 - High Business Priority Processing.

CLASS = 2 Very short running jobs
CLASS = E General use for ITD, HW, DSA, DSP, SCO, LSO. (AU44, SC35, DA80 Prod Jobs are re-assigned to service class group 1)
CLASS = 4 General use for ITD, HW, DSA, DSP, SCO, LSO (AU44, SC35, DA80 Prod Jobs are re-assigned to service class group 1)

GROUP 3 - Medium Business Priority Processing

CLASS = B General Use for ITD, HW, DSA, DSP, SCO, LSO. (AU44, SC35, DA80 Prod Jobs are re-assigned to service class group 1)
CLASS = 5 Large SYSOUT. Report jobs should be in TYPRUN=HOLD
CLASS = 6 Large SYSOUT. Report jobs should be in TYPRUN=HOLD
CLASS = H ITD jobs that use (1) or (2) tape drives and/or access the Database.
CLASS = I ITD jobs which do not use either Database or Tape.
CLASS = J ITD that use (3) or more Tape Drives and/or access the Database and are long running
CLASS = V ITD jobs that will remain in HOLD until after the last T26 job successfully completes (Minimum 2 initiators)

GROUP 4 – Other Business Priority Processing.

CLASS = A General processing for any customer
CLASS = F Fish & Game(FG)
CLASS = G Retirement(RE), Parks & Recreation(PK), Liquor Dispensary(LQ), Public Lands(PL).
CLASS = T Test/Development jobs
CLASS = 3 SCO Billing system and On-Line Reporting jobs

GROUP 5 - DISCRETIONARY TESTING.

Test or newly developed jobs/programs that need debugged, or could loop, and/or could have run away transaction. Class will be given limited resources.

CLASS = 0 Systems test class
CLASS = 9 General usage for testing newly developed jobs or programs.
CLASS = 7 Jobs that require multiple considerations and/or require special action by the Computer Operator before the job can be released. These jobs must be submitted with explicit documentation in the special instruction area of the RJE. Jobs are automatically held. - JOBS will be re-classed for submission based on documentation.

MESSAGE CLASS (Output MSGCLASS= defined in job card)

MSGCLASS = A - Default - "Simplex 2up" output.

MSGCLASS = B – IBM sample JCL.

MSGCLASS = C - Print for EIS output only.

MSGCLASS = D – H&W destination output.

MSGCLASS = E - Default - "Simplex 2up" output.

MSGCLASS = F – Legislative web output.

MSGCLASS = G – Retirement destination output.

MSGCLASS = H – System hold class for TSO

MSGCLASS = I – H&W destination output requiring operator intervention.

MSGCLASS = J – Unassigned as of 11/20/06.

MSGCLASS = K – Unassigned as of 11/20/06

MSGCLASS = L - Systems use only (syslog).

MSGCLASS = M - "Standard Duplex" output.

MSGCLASS = N - "Standard Duplex 2up" output.

MSGCLASS = O – Unassigned as of 11/20/06

MSGCLASS = P - VPS LOG

MSGCLASS = Q – Used for dataset jogging within print output.

MSGCLASS = R - Print output for STARS output only.

MSGCLASS = S – Held class for TSO.

MSGCLASS = T - Default - "Simplex 2up" with a DEST=parm.

MSGCLASS = U - Health & Welfare laser print class.

MSGCLASS = V - NON printer class for catalog backup jobs.

MSGCLASS = W - Defines special forms (in hold).

MSGCLASS = X - Defines "Standard Simplex" output.

MSGCLASS = Y - Default - "Simplex 2up" output.

MSGCLASS = Z - Defines a job where all system messages and all SYSOUT=* output is to be purged upon job completion.

MSGCLASS = 1 – ITD

MSGCLASS = 2 – ITD

MSGCLASS = 3 – ITD

MSGCLASS = 4 – ITD Hold SYSOUT print class (will auto purge from spool after printing)

MSGCLASS = 5 - H&W test JHS output class

MSGCLASS = 6 - SCO test JHS output class

MSGCLASS = 7 – H&W production JHS output class

MSGCLASS = 8 - SCO production JHS output class.

MSGCLASS = 9 – ITD production JHS output class

MISCELLANEOUS STANDARDS:

It is the responsibility of each user of the Computer Service Center to comply with the following operations standards. Strict adherence to these standards will result in more efficient utilization of all resources.

General Sysout Usage:

Monitor the jobs you place in output queues R40, TSO, and Customer REMOTES. If you need the output, route it to the printer. If not, purge it from the queue.

Route the de-allocation from print jobs (CLASS=I) to local. The operator will include the de-allocation with the report for proper identification and distribution.

Print jobs (exec print proc) are for high volume output (50K lines or more). If the total output from the report is less than 50K lines, turnaround time will be faster if SYSOUT is used. SYSOUT can be used for all types of forms.

/* JOBPARM LINE=XX' - Cannot be used without permission from the Computer Operations Manager. Jobs using this parameter without approval will be cancelled.

Customer Tapes:

Customer tapes must be identified externally on both the side and top of the tape. The top of the tape should also contain the address and location where the tape is to be returned.

Customer tapes must start with an alpha character (other than R or S) and not exceed 6 digits.

Customer tapes will not be supported by the Computer Service Center's tape library facility (RMM).

Computer Service Center tapes:

RMM and the system catalog are kept in sync with one another. If a tape dataset is uncataloged, the tape will be automatically scratched.

A tape library listing will be sent to some agencies. To ensure efficient storage methods and reduce cost, we encourage users to review and scratch any old or obsolete data.

Operation Specifications:

Specifications are required for any operation that requires special handling by a Production Specialist in relation to job completion.

Sample Form/Report Setup - Must be supplied for all jobs that require non-standard forms.

Computer Action Run Request Form - Must be supplied for all applications requiring unique or optional data to be supplied by a Production Specialist (only one request may be made per form).

Problem Records – Are initiated for any job or process that operation's is responsible for or has initiated and has not reached successful completion.

Failure to follow job standards could cause contention on the system and result in the operator having to cancel the job.

Any user who requires assistance should call the Help Desk at 334-4808**.**